

What is claimed is:

1. A catheter apparatus for use in a body passage, comprising:
a catheter shaft;
an expandable conduit defined by a filter mesh material of varying porosity mounted on said catheter shaft, said expandable conduit having an upstream end and a downstream end, said expandable conduit having a collapsed position in which said expandable conduit is collapsed toward said catheter shaft and an expanded position in which said upstream end of said expandable conduit is open to fluid flow; and
an upstream sealing member at said upstream end of said expandable conduit for creating a seal between said upstream end of said expandable conduit and an internal wall of the body passage.
2. The catheter apparatus of claim 1, wherein said upstream sealing member comprises an inflatable toroidal balloon.
3. The catheter apparatus of claim 1, further comprising a perfusion lumen within said catheter shaft in fluid communication with a space exterior to said expandable conduit.
4. The catheter apparatus of claim 1, wherein said expandable conduit further comprises at least one longitudinal support member attached to a wall of said expandable conduit.
5. The catheter apparatus of claim 1, wherein said expandable conduit further comprises

an end wall of porous fabric across said downstream end of said expandable conduit.

6. The catheter apparatus of claim 1, further comprising an occlusion member for selectively occluding said expandable conduit.

7. The catheter apparatus of claim 6, further comprising an infusion lumen within said catheter shaft having an infusion port upstream of said occlusion member.

8. The catheter apparatus of claim 7, further comprising a second perfusion lumen within said catheter shaft.

9. The catheter apparatus of claim 1, further comprising a tubular sheath sized to fit over said expandable conduit when in said collapsed position.

10. The catheter apparatus of claim 6, wherein said occlusion member is an inflatable occlusion balloon.

11. The catheter apparatus of claim 1, wherein said catheter shaft is positioned external to said expandable conduit.

12. The catheter apparatus of claim 1, wherein said catheter shaft is positioned internal to said expandable conduit.